UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,699	08/24/2006	Hiroo Koyanagi	441P102	6531

42754 7590 02/25/2009

Nields, Lemack & Frame, LLC
176 E. Main Street
Suite #5
Westborough, MA 01581

EXAMINER	
HAMILTON, CYNTHIA	
ART UNIT	**PAPER NUMBER**
1795	
MAIL DATE	**DELIVERY MODE**
02/25/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/585,699	KOYANAGI ET AL.	
	Examiner	Art Unit	
	Cynthia Hamilton	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/11/08, 08/24/06, 08/27/06, 07/10/06*.

2a)☐ This action is FINAL. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) *4-7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☒ Claim(s) *4-7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/23/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 4-7 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend upon another multiple dependent claim. Claim 3 is a multiple dependent claim. Claim 4 is a multiple dependent claim depending upon multiple dependent claim 3. Claims 5-7 depend upon claim 4. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

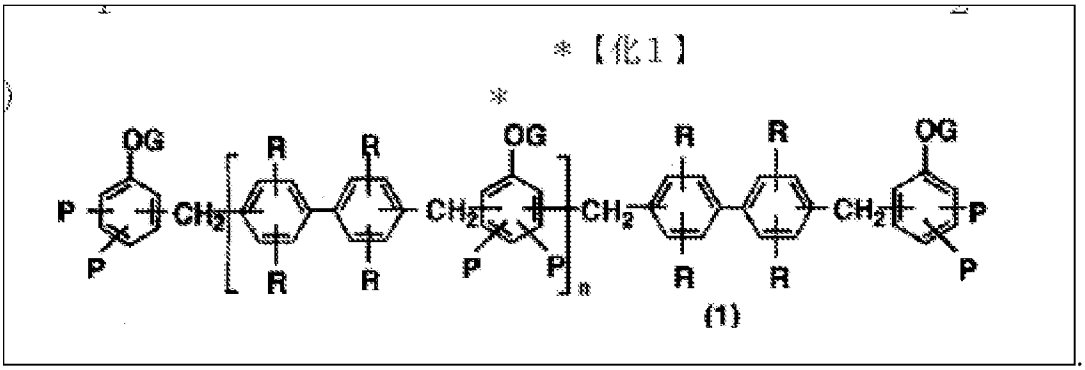
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

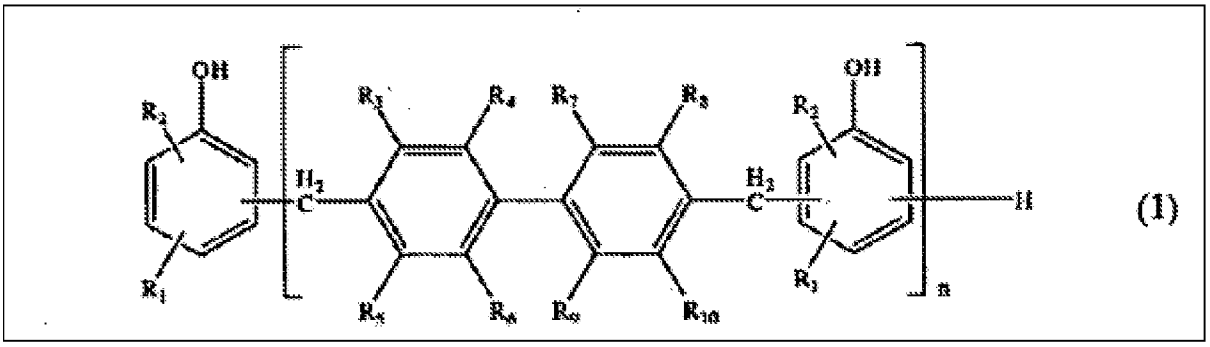
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over YOKOSHIMA et al (JP 09-211860 A) as evidenced by PAT-NO: JP409211860A, AN 1997:557769 and machine translation of JP 09-211860 A further evidenced or , in the alternative, in view of Celeste (US 3,448,089). With respect to instant claims 1-3, the compositions of the Examples of YOKOSHIMA et al anticipate, or or, in the alternative, make obvious the instant compositions because even though the carboxy group containing resin of YOKOSHIMA et al is made in a different manner than that of the instant carboxy group containing resin (A), the end product is substantially the same. Thus, even though

the product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See particularly In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The evidence for this rejection is found first in PAT-NO: JP409211860A, and AN 1997:557769. AN 1997:557769 references glycidyl oxy epoxy resins being reacted first with unsaturated monocarboxylic acids then carboxylic acids to yield the unsaturated polycarboxylic acids based resins of YOKOSHIMA et al. PAT-NO: JP409211860A references a resin being made from reacting the formula 1 of YOKOSHIMA et al with a monocarboxylic acid having an unsaturated group then reacting this product with a polybasic carboxylic acid anhydride. Formula 1 is as shown below:

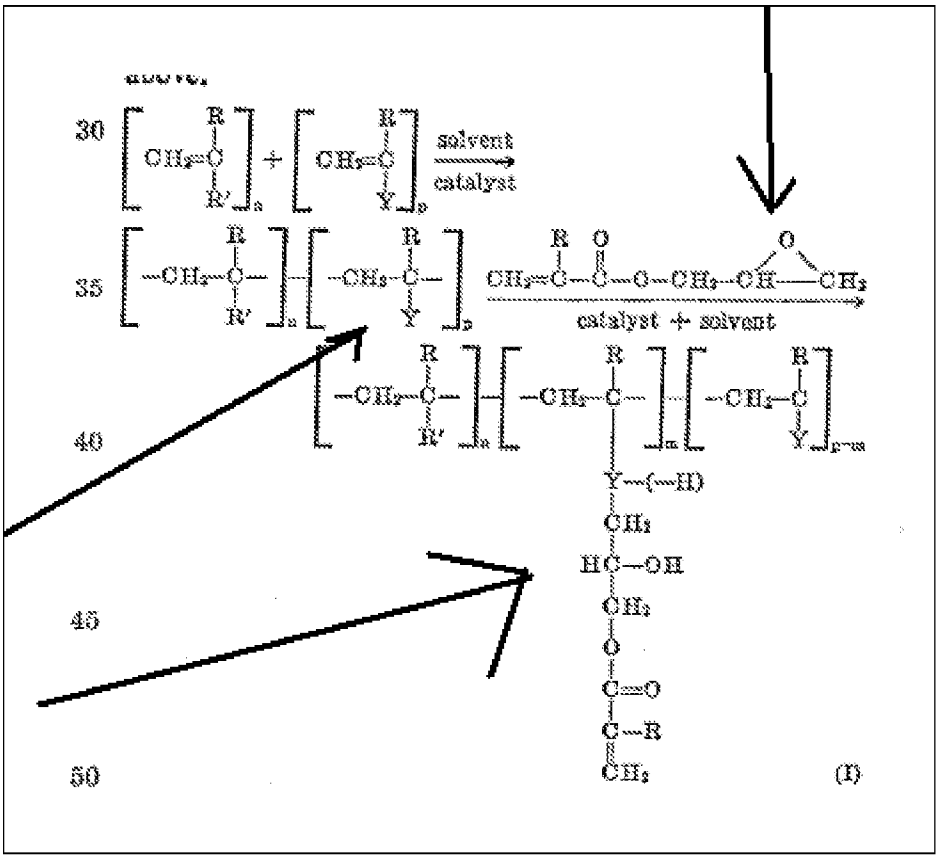


. The instant reaction product is made from

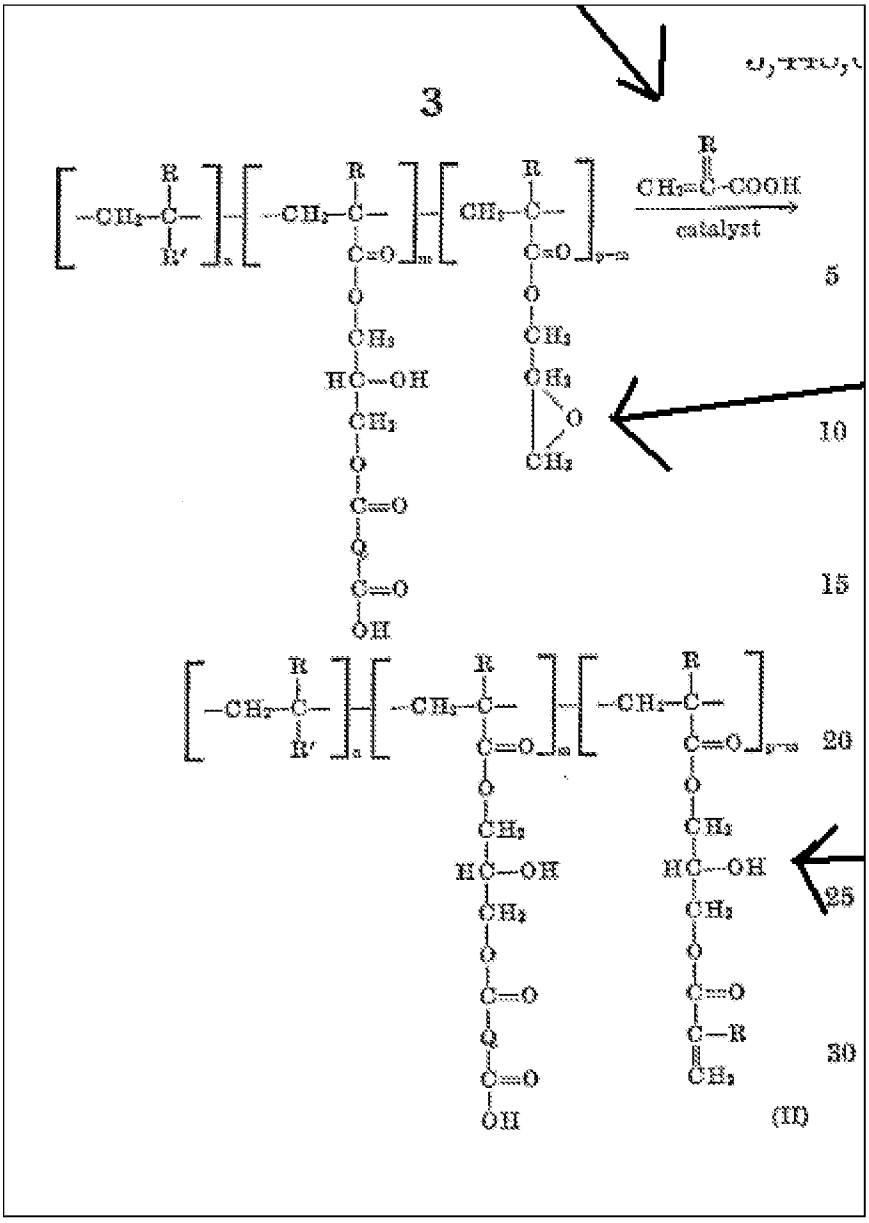


(I)

reacted with a molecule having both a glycidyl group and an ethylenically unsaturated group then reacting that product with a polybasic acid anhydride. The products of either method are the same essentially as evidenced by Celeste as follows wherein Y is an _COOH group and arrows have been added by the examiner to point to the like reactions:



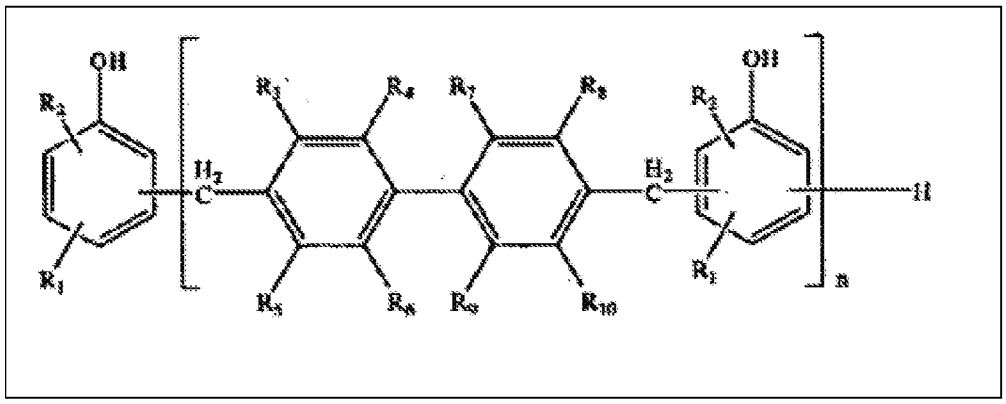
and



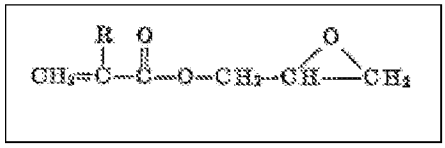
thus when either product is reacted with the polybasic acid anhydride the same. Applicants on page 10 as reproduced below:

> The reaction to add the polybasic acid anhydride (c) can be performed by adding a polybasic acid anhydride (c) to the reaction solution after the reaction of the compound (a) and the compound (b). The reaction temperature at the time is preferably 60 to 150°C, and the reaction time is preferably 2 to 8 h. The adding amount of the polybasic acid anhydride (c) is preferably charged in such a calculated amount from the viewpoint of developability that the acid value of the solid content of the carboxyl group-containing acrylate resin (A) having the biphenyl skeleton finally obtained is 40 to 160 mg·KOH/g.

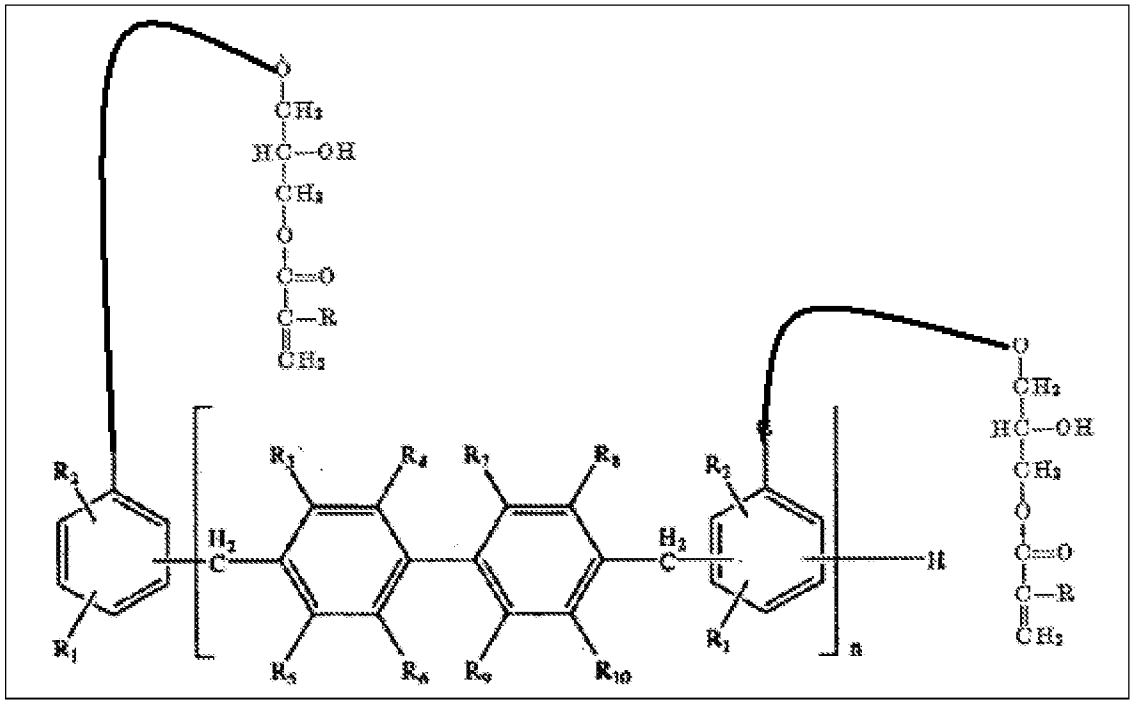
teach that the polybasic acid anhydride is added after the first reaction product. The machine translation of YOKOSHIMA et al at [0015] teaches the use of glycidyl (meta) acrylate which is more clearly written as glycidyl methacrylate or glycidyl acrylate. The instant method is



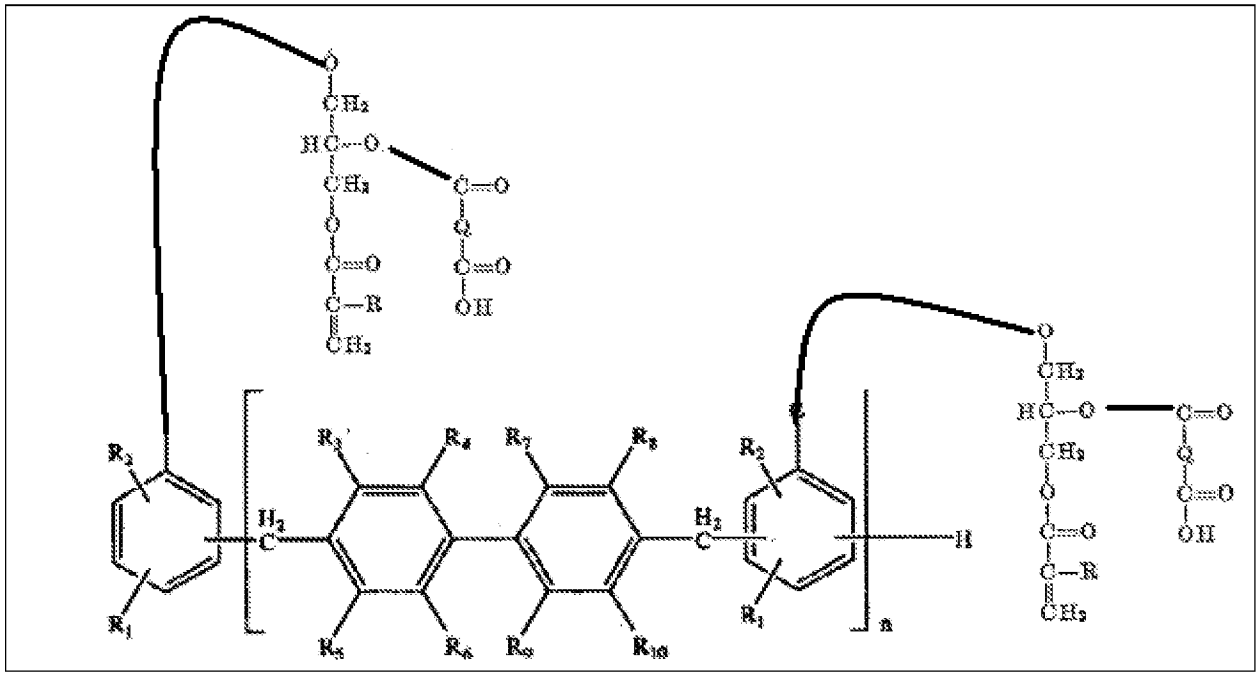
plus



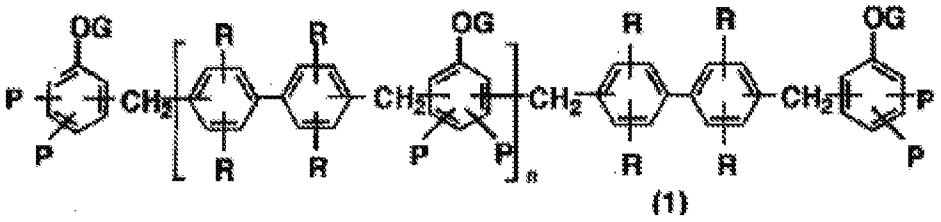
to yield



which is reacted with a polybasic acid anhydride to yield

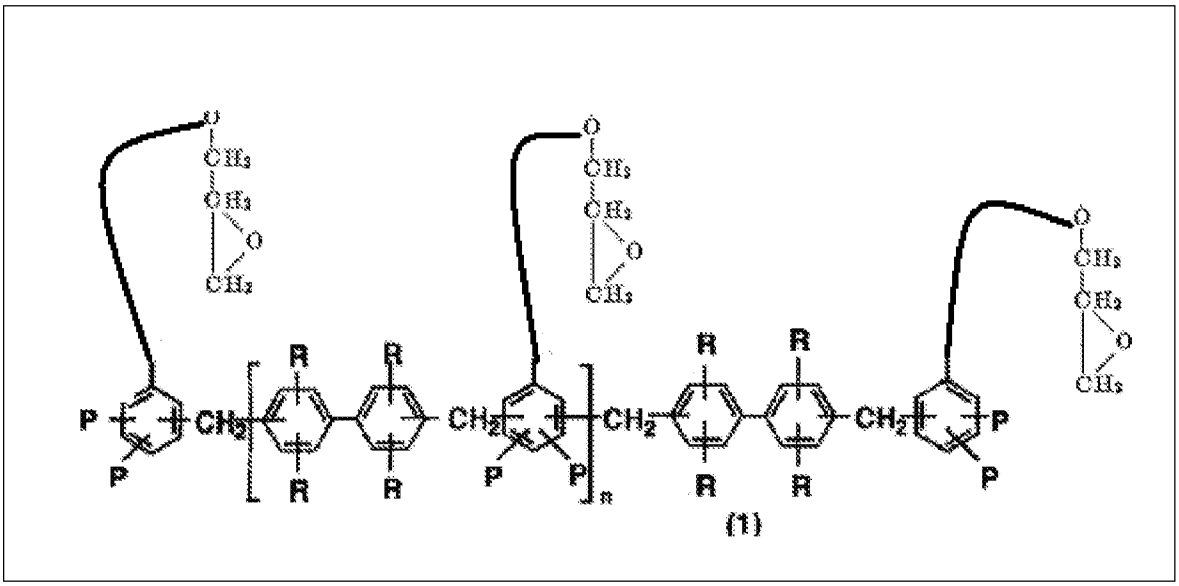


. The reactions of YOKOSHIMA et al are as follows:

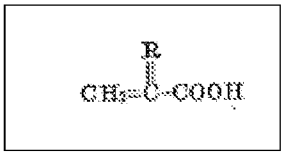


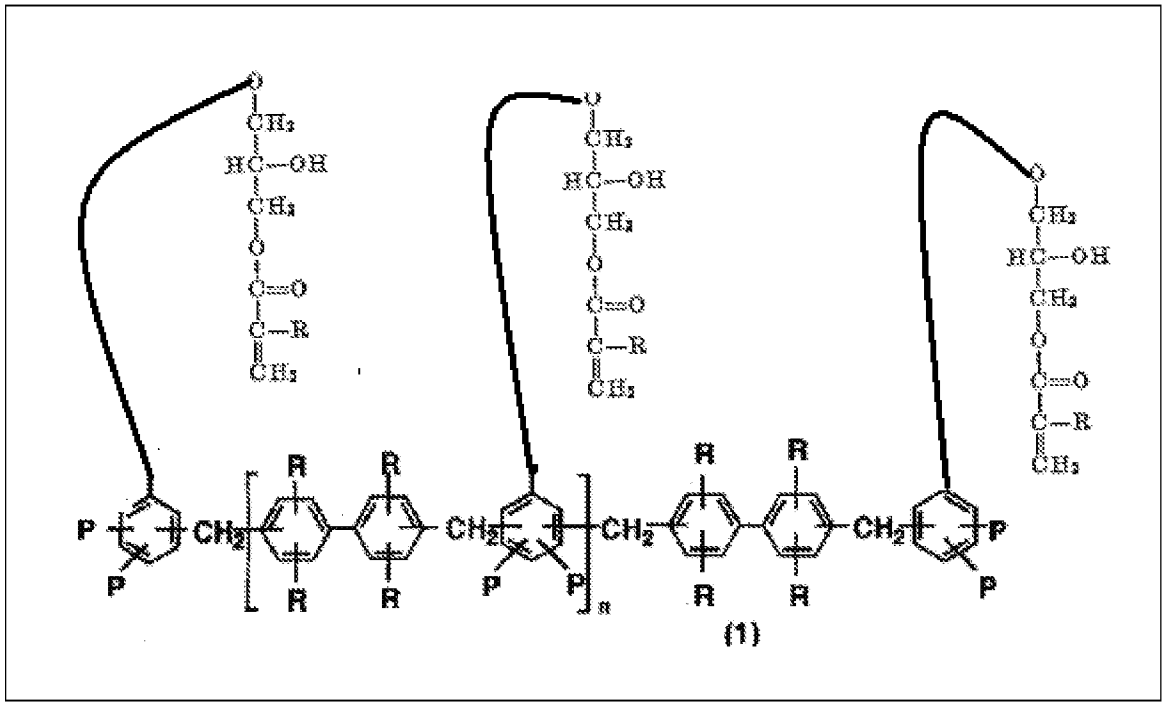
(1)

which when G is replaced with a glycidyl group is



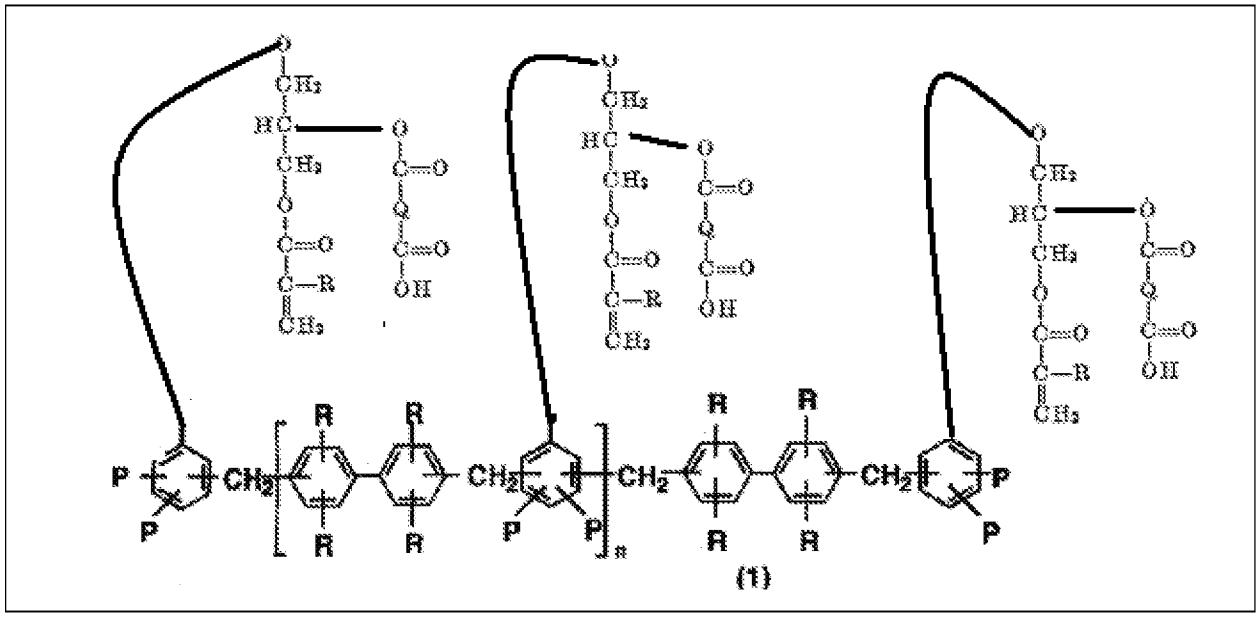
(1)

Plus  which when reacted yields



that

when reacted with polybasic acid anhydride yields

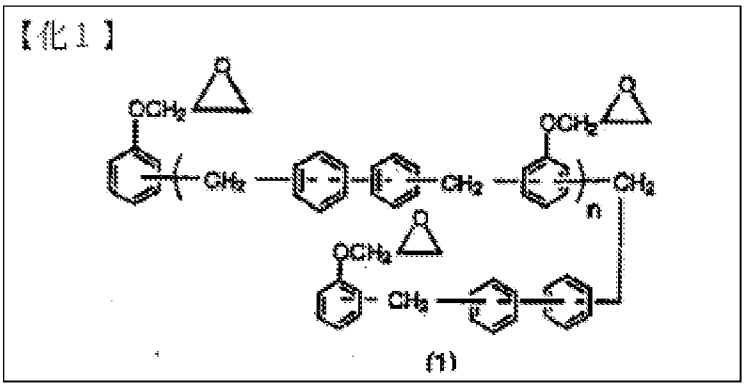


(1)

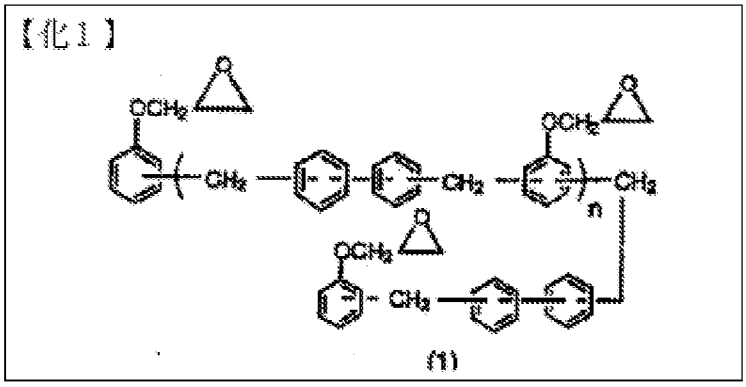
YOKOSHIMA et al in [0050] to [0064] make two of these products then in [0065] to [0103] combines them with polyacrylate and epoxy resins and photopolymerization initiators forming compositions which make the instant compositions anticipated or in the least prima facie obvious for the reasons set forth above with respect to product by process being drawn to the product finally made no matter the method of making if the product is essentially the same. The polyacrylates and/or the epoxy resins are crosslinking agents for these products of YOKOSHIMA et al.

5. Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yokoshima et al (JP 11-140144 A) as evidenced by PAT-NO: JP411140144A and AN 1999:331367 and machine translation of JP 11-140144 A further evidenced or, in the alternative, in view of Celeste (US 3,448,089). With respect to instant claims 1-3, the compositions of the Examples 3-4 of YOKOSHIMA et al anticipate, or, in the alternative, make obvious the instant compositions because even though the carboxy group

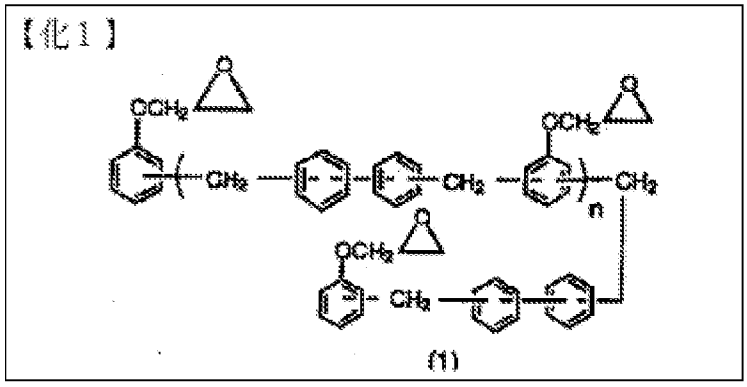
containing resin of YOKOSHIMA et al is made in a different manner than that of the instant carboxy group containing resin (A), the end product is substantially the same. Thus, even though the product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. See particularly In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The evidence for this rejection is found first in PAT-NO: JP411140144A and AN 1999:331367. PAT-NO: JP411140144A references a resin composition comprised of an epoxy(meth) acrylate obtained by reacting



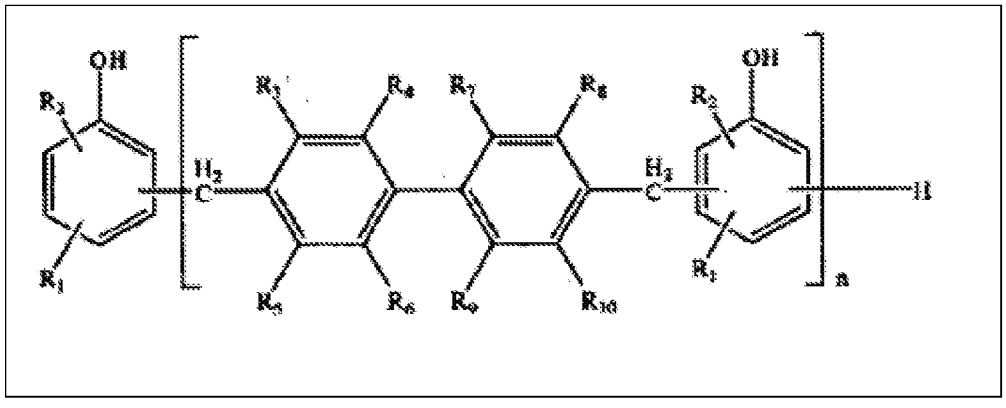
with a monocarboxylic acid containing an unsaturated group and a diluent. AN 1999:331367 references (A') carboxy-containing epoxy resin (methacrylate) prepared from (A) and polybasic acid anhydrides with (A)

being the epoxy acrylate formed from 

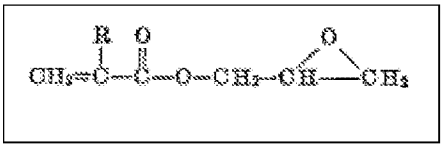
and unsaturated monocarboxylic acids. This (A') is mixed with dipentaerythritol acrylate which is a crosslinking agent and benzyl di-Me ketal which is a photopolymerization initiator. AS can be seen by CRN 79-10-7 in AN 1999:331367, acrylic acid is the unsaturated monocarboxylic acid used to make the epoxy acrylate reacted with

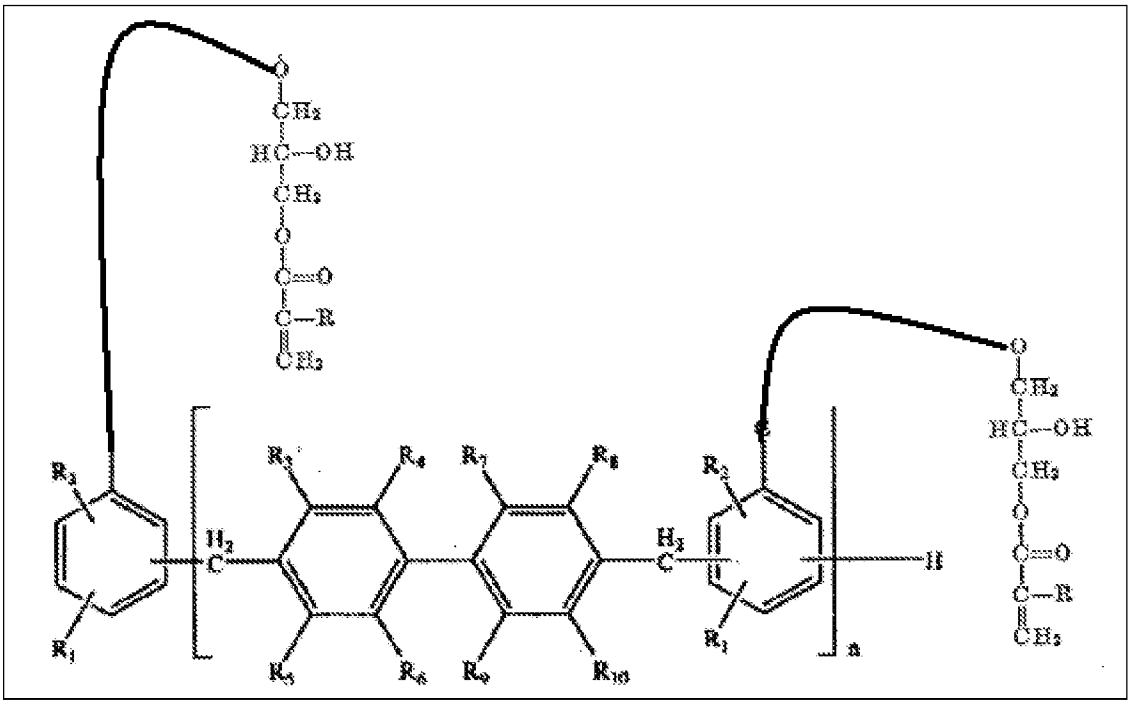


. Thus, the instant method is



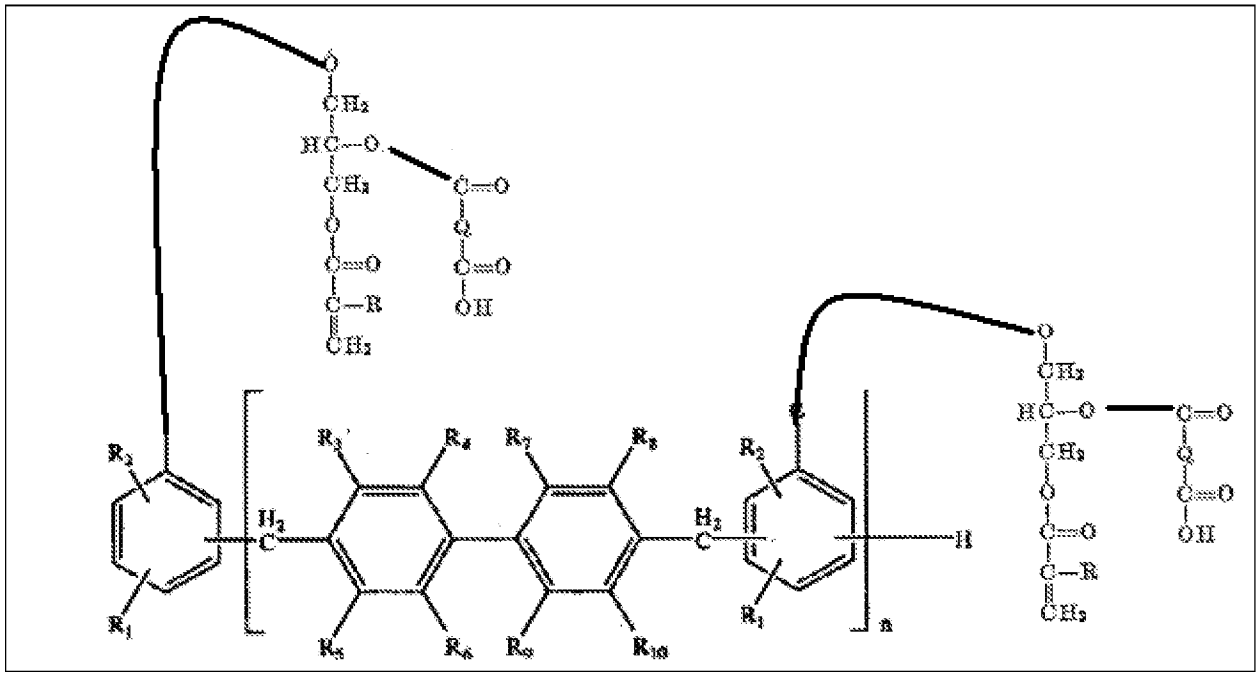
plus


to yield

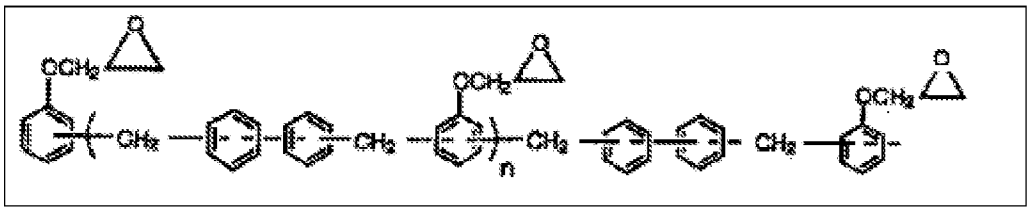

which is

reacted with a polybasic acid anhydride to

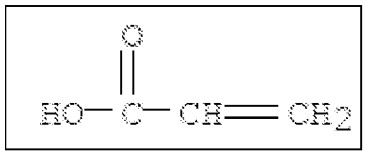
yield



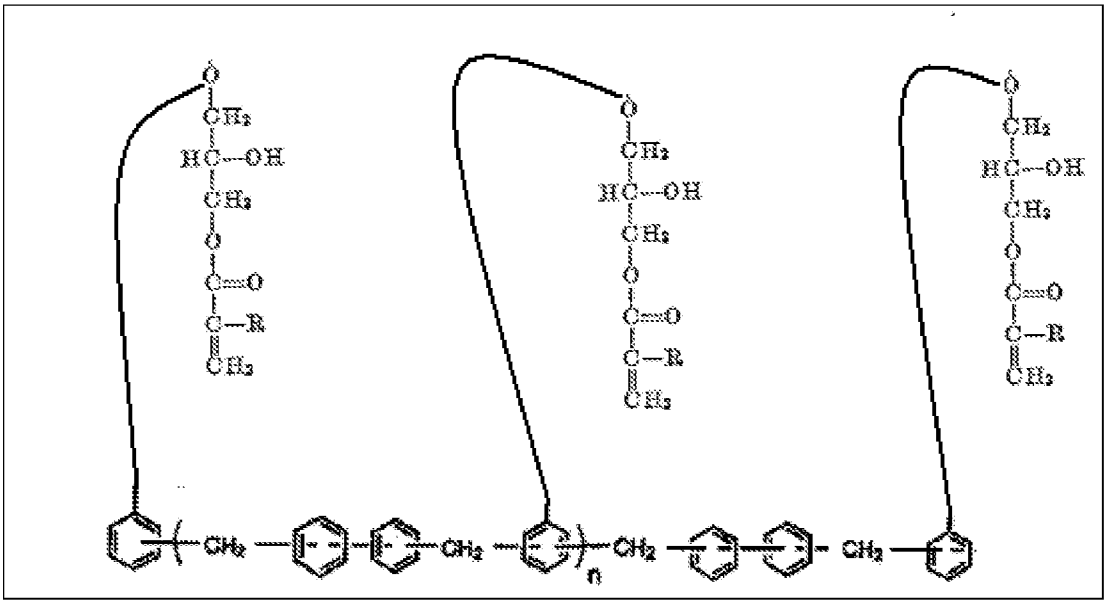
. While YOKOSHIMA et al makes their resin differently they make essentially the same resin as shown below:



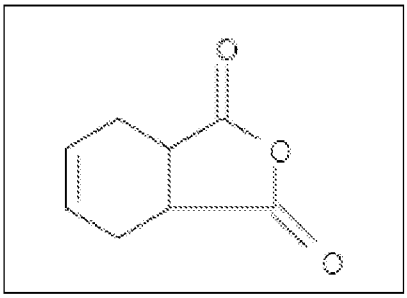
and



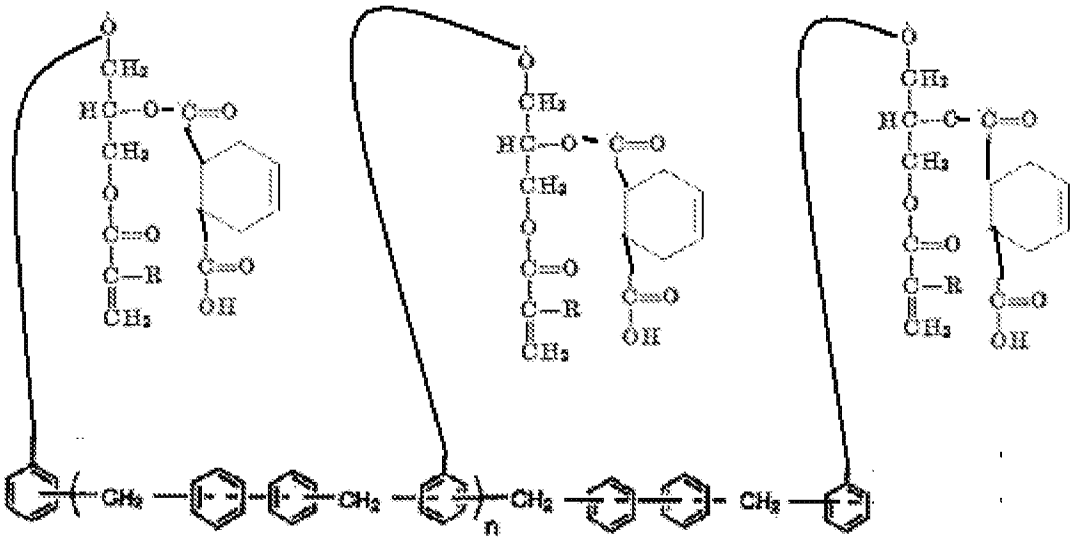
to form the reaction product of



which is then reacted with



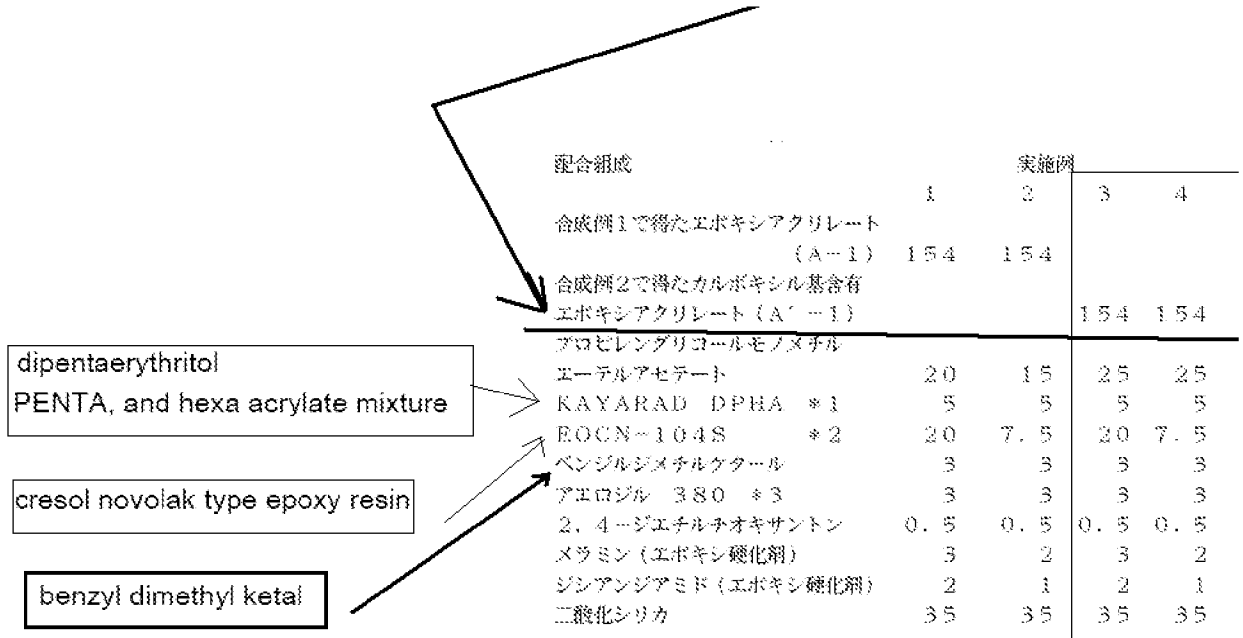
to yield



which is essentially the same as the instant invention. The machine translation of JP 11-140144 A supports this with the following:

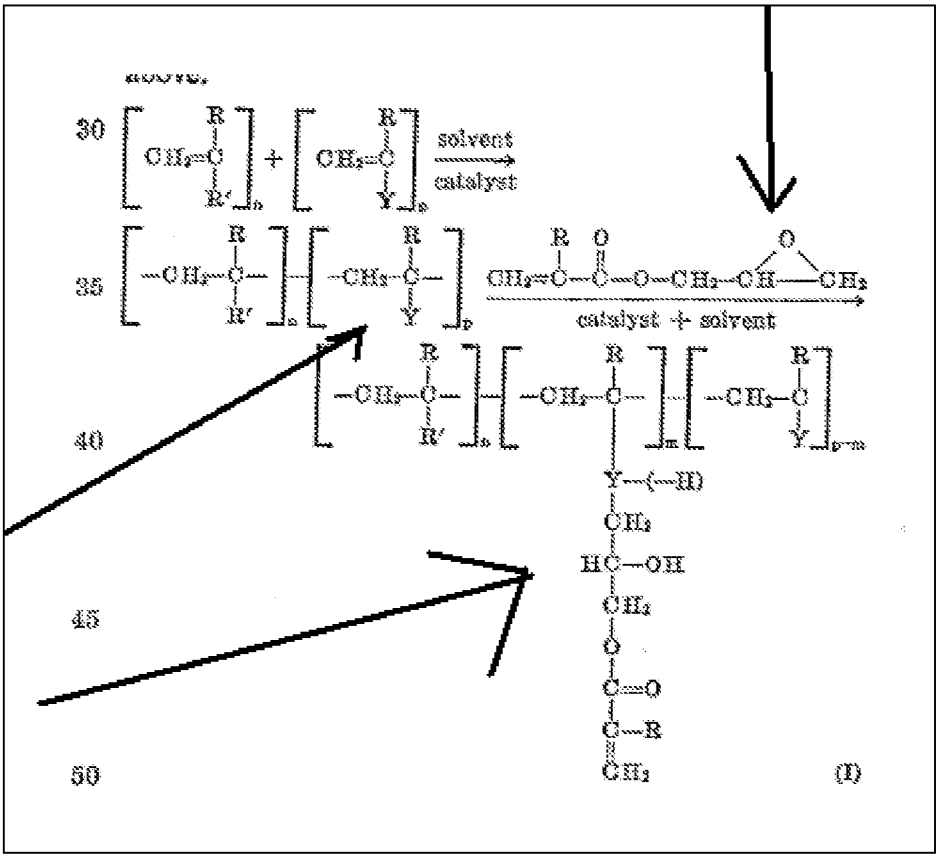
> [0034] (Synthetic example of carboxyl group content epoxy (meta) acrylate resin (A'))
> 5530.6 g epoxy epoxyacrylate resin (A-1), 1338.5 g tetrahydro phthalic anhydride, 504.5 g carbitol acetate, and 216.2 g solvent naphtha which were obtained in the example 1 of synthetic example 2. synthesis The reaction was performed at preparation and 95 degrees C for 10 hours, and carboxyl group content epoxy epoxyacrylate resin (A'-1) was obtained. The solid content acid number (mgKOH/g) of the product was 100, and viscosity (25 degrees C, poazu) was 375.

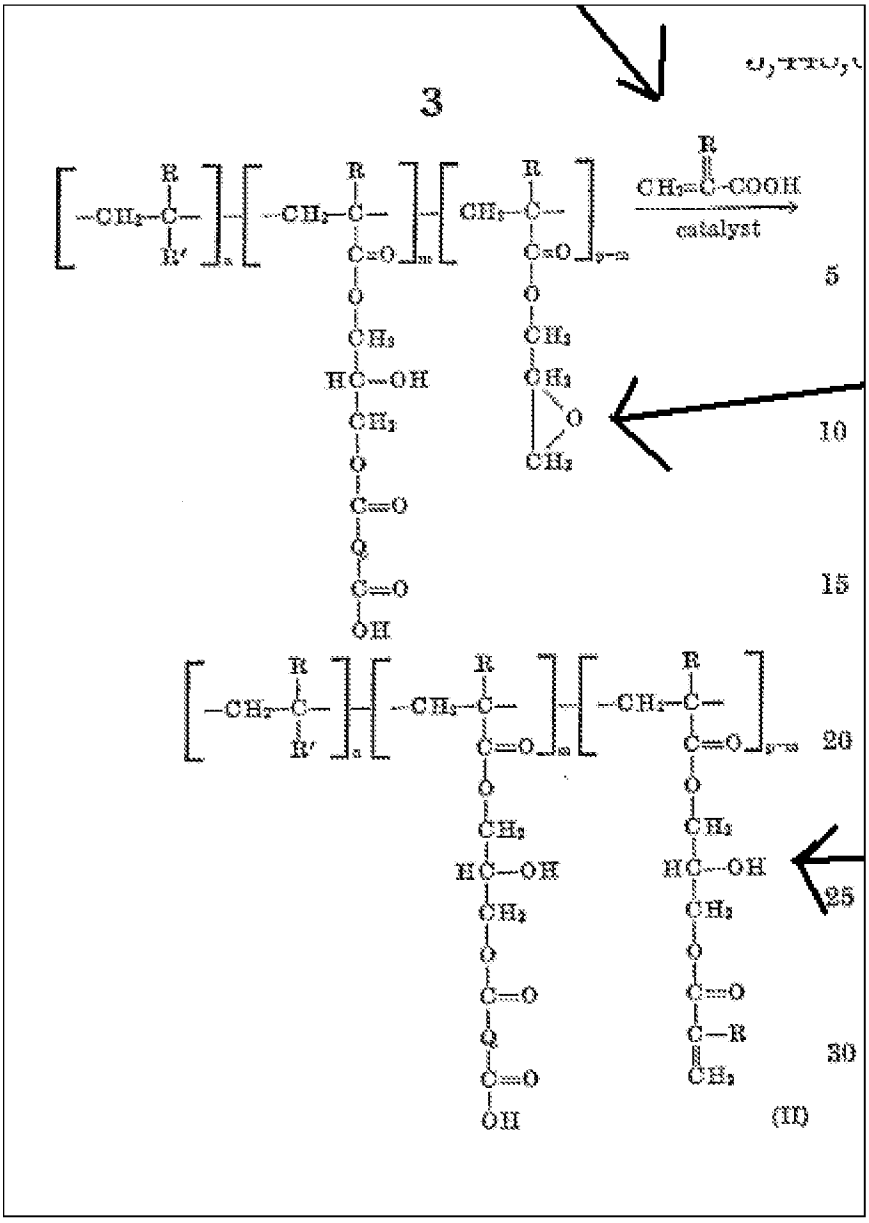
and the annotated table



配合組成	実施例			
	1	2	3	4
合成例1で得たエポキシアクリレート（A－1）	154	154		
合成例2で得たカルボキシル基含有エポキシアクリレート（A´－1）			154	154
プロピレングリコールモノメチルエーテルアセテート	20	15	25	25
KAYARAD DPHA ＊1	5	5	5	5
EOCN-104S ＊2	20	7.5	20	7.5
ベンジルジメチルケタール	3	3	3	3
アエロジル 380 ＊3	3	3	3	3
2，4－ジエチルチオキサントン	0.5	0.5	0.5	0.5
メラミン（エポキシ硬化剤）	3	2	3	2
ジシアンジアミド（エポキシ硬化剤）	2	1	2	1
二酸化シリカ	35	35	35	35
現像性	○	○	○	○
耐メッキ液	○	○	○	△
半田耐熱性				
ポストフラックス耐性	○	○	○	○
レベラー用フラックス耐性	○	○	○	○

The products of either method are the same essentially as evidenced by Celeste as follows wherein Y is an _COOH group and arrows have been added by the examiner to point to the like

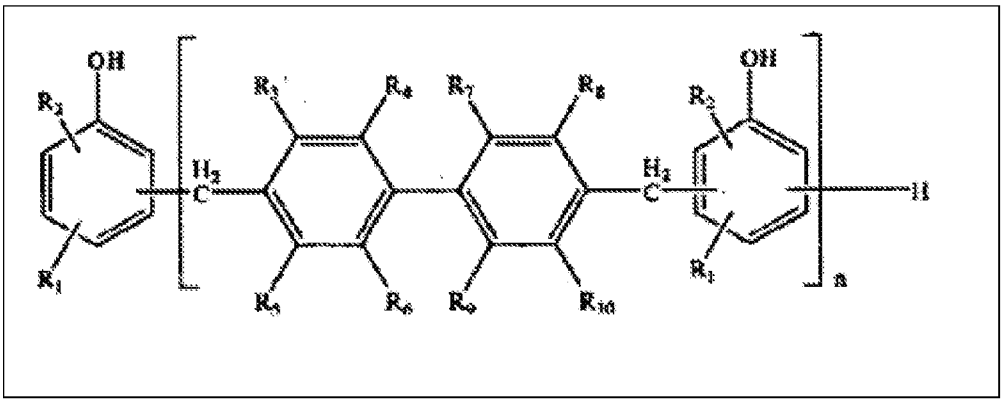
reactions:  and



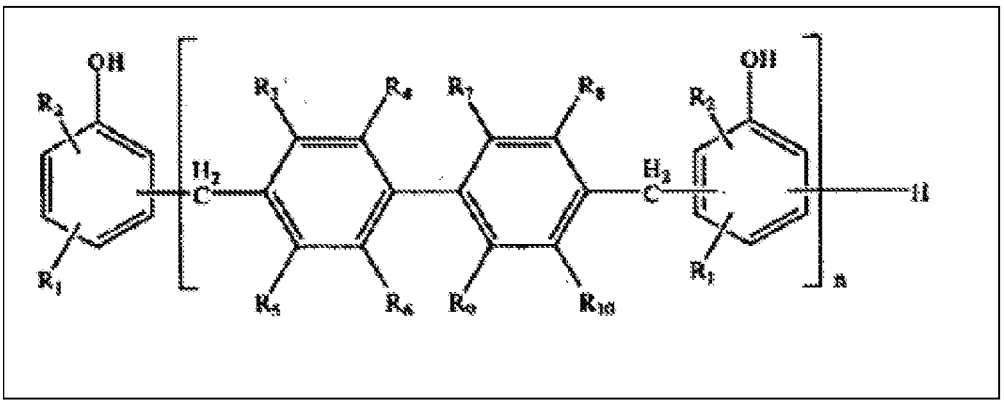
thus when either product is reacted with the polybasic acid anhydride the same.

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP, 2002-128865a as evidenced by English translation of JP, 2002-128865a (2002) from machine translation from AIPN in view of JP 2003-082067 a as evidenced by English translation of JP, 2003-082067 a (2003) from machine translation from AIPN further in view of JP, 2002-308957

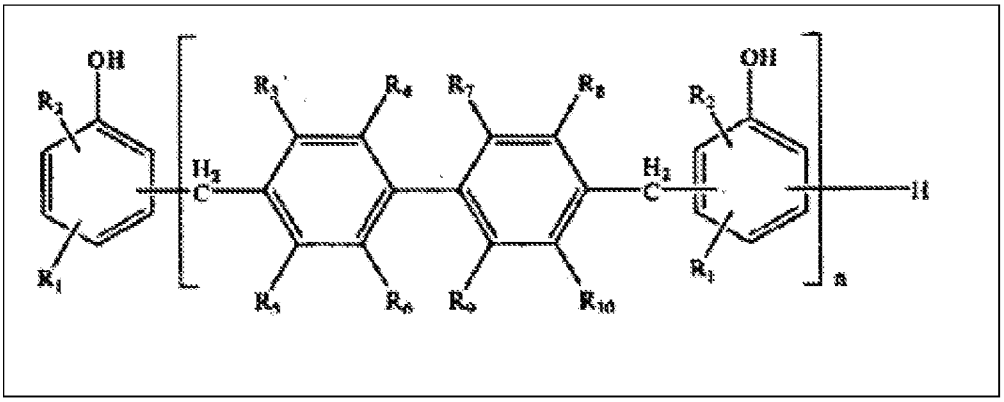
a as evidenced by English translation of JP, 2002-308957 a (2002). With respect to instant claims 1-3, JP, 2002-128865a as evidenced by English translation of JP, 2002128865a (2002) teaches all of the instant invention with the exception of using the



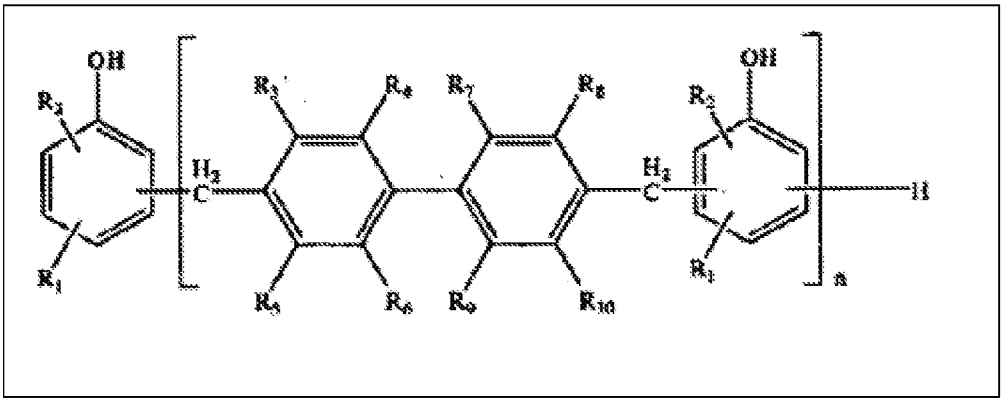
as the phenol resin for forming photopolymers to be used in solder resists. However, reactant (I) of JP, 2002128865a is not limited to the explicit examples given. This reactant is at [0007] disclosed as a phenol resin. JP 2003-082067 makes such resins from



into the intermediate product of P, 2002128865a and JP 2003-082067 references the final products using such acrylates as having flexibility in [0003]. Thus, the use of such



reacted with the compounds containing both epoxy and acrylate groups as taught in JP, 2002128865a would have been prima facie obvious to increase the flexibility of the final products of JP, 2002128865a. Finally, the addition of the anhydride to epoxy acrylated resins in general is taught by JP, 2002-308957 a to add -COOH groups for improved development control with aqueous base developers. With respect to instant claims 1-3, the use of the



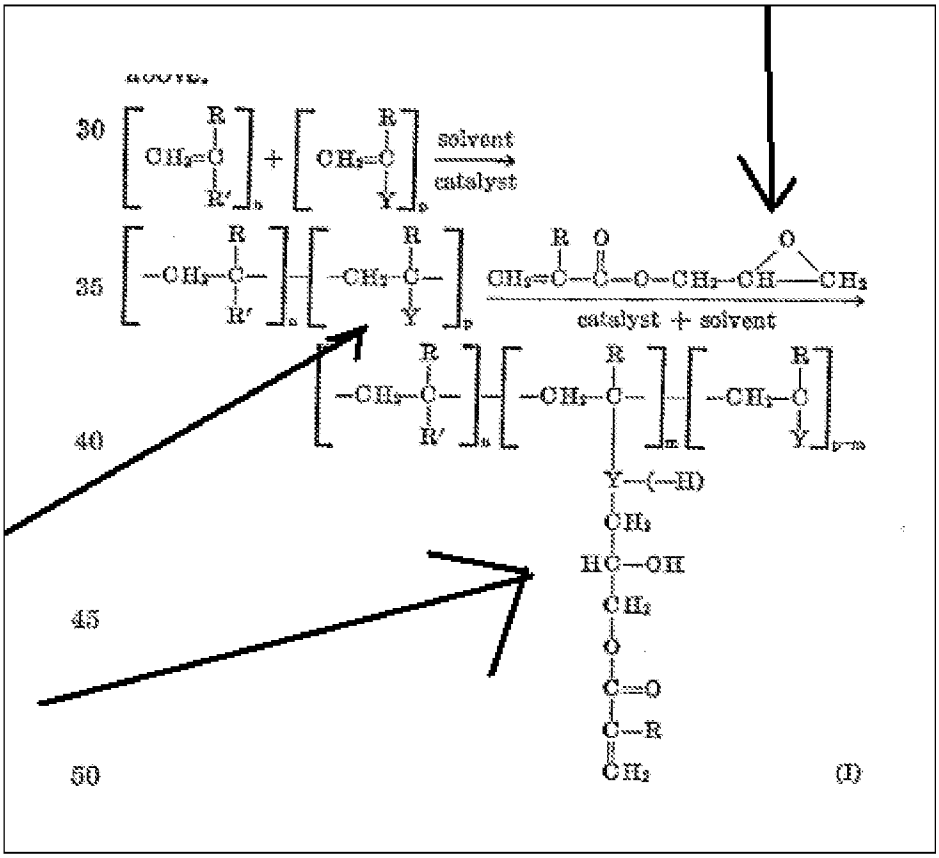
of JP 2003-082067 as the phenol of JP, 2002128865a to improve flexibility while having improved aqueous base developability would have been obvious to workers of ordinary skill in the art as suggested by JP, 2002-308957 a. In JP, 2002-308957 a, see particularly claims and [0006]-[0016]. In JP 2003-082067, see particularly the claims and [0003] and [0013] to [0019] . In JP, 2002-128865a, see particularly [0006] to [0021] and Claims and [0001] -[0002].

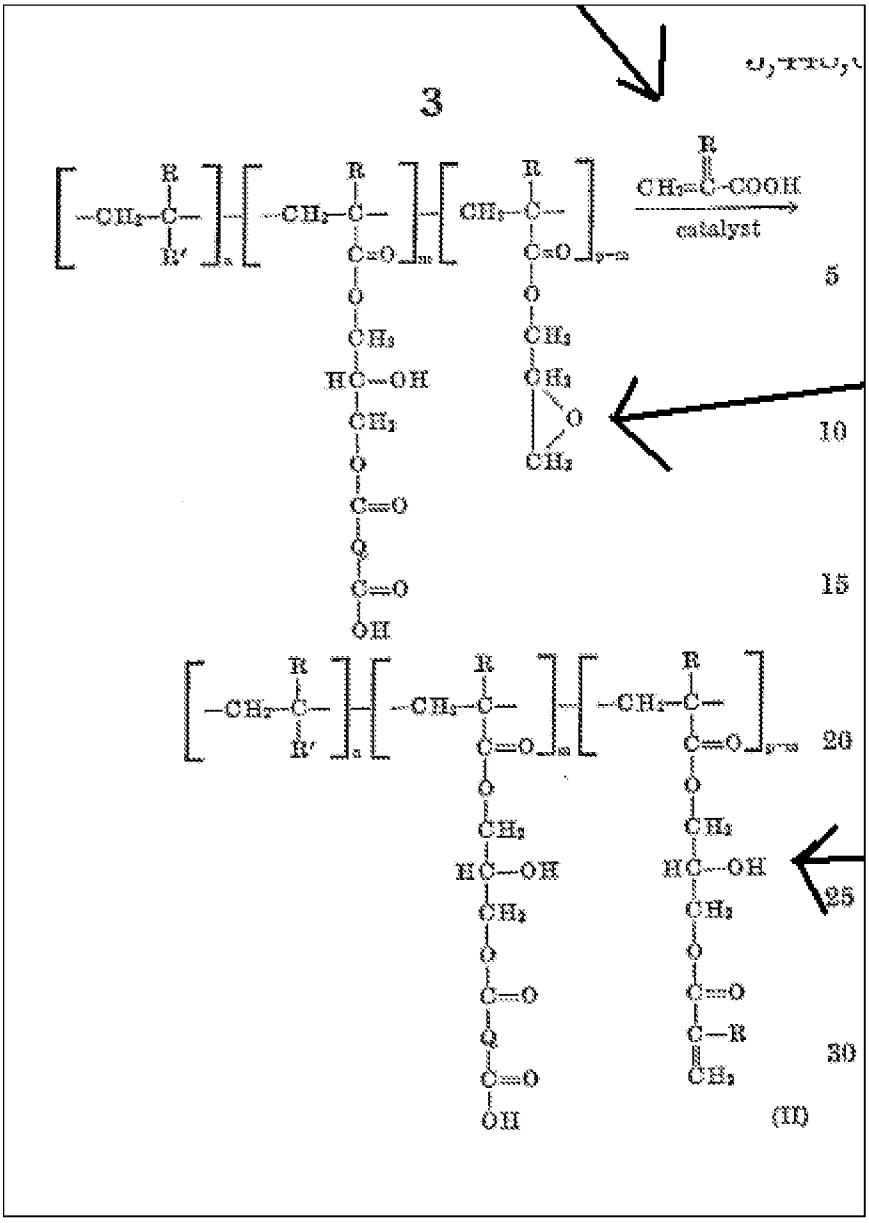
7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

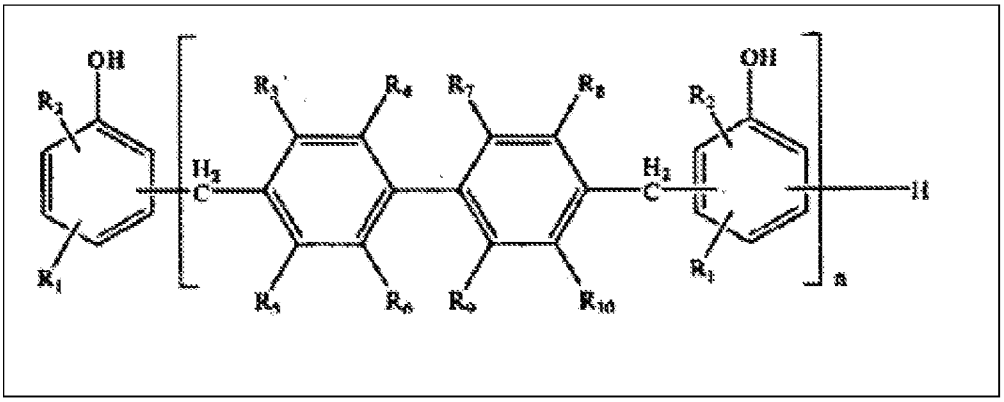
Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of copending Application No. 11/988,903 in view of Celeste (US 3,448,089) . With respect to the species of glycidyl acrylate or methacrylate in the instant genus of a compound (b) having an ethylenically unsaturated group and a glycidyl group, the compositions of 1-3 of copending Application No. 11/988,903 anticipate or, in the alternative make prima facie obvious applicants compositions because the carboxyl group containing resin of both are essentially the same although made in different manners. The products of either method are the same essentially as evidenced by Celeste as follows wherein Y is an _COOH group and arrows have been added by the examiner to point to

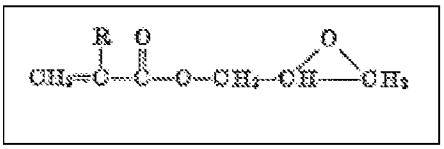
the like reactions:  and



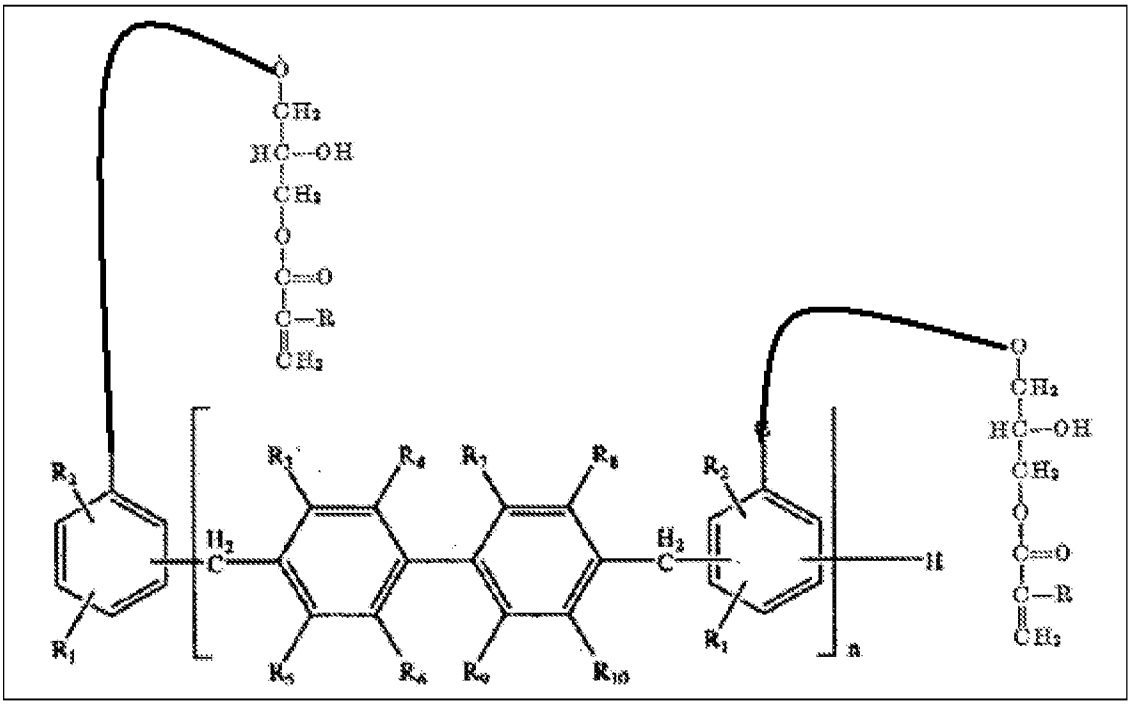
thus when either product is reacted with the polybasic acid anhydride the same. The instant method is



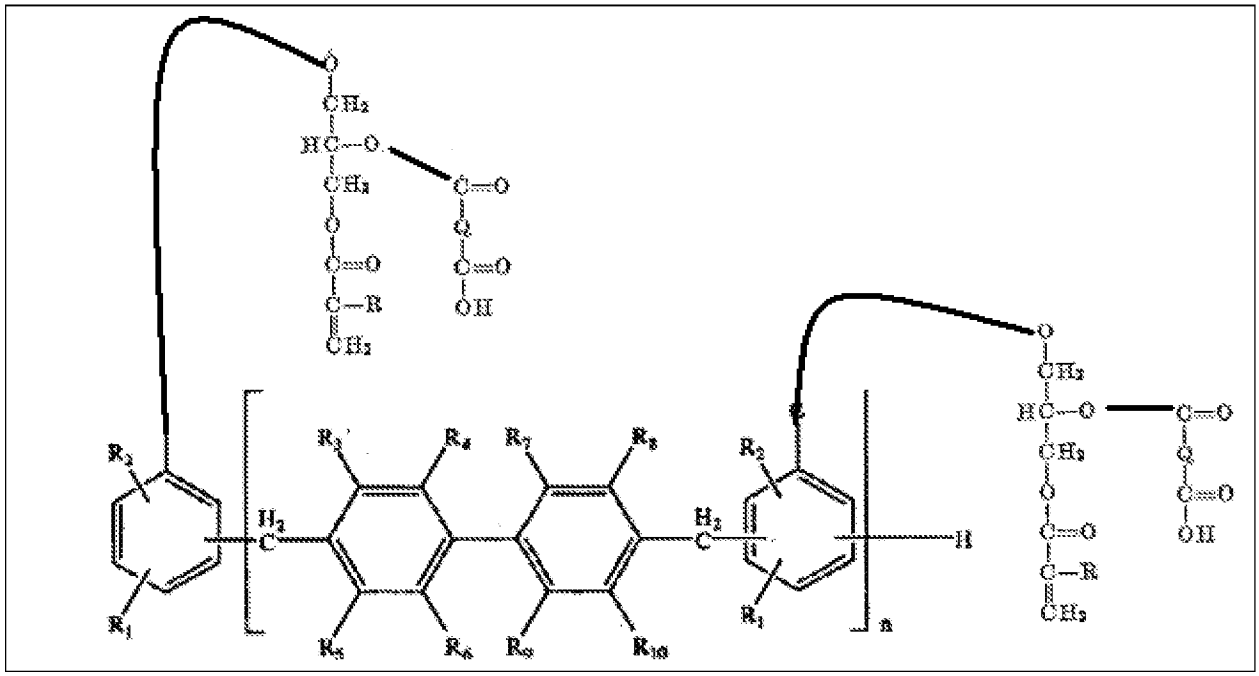
plus



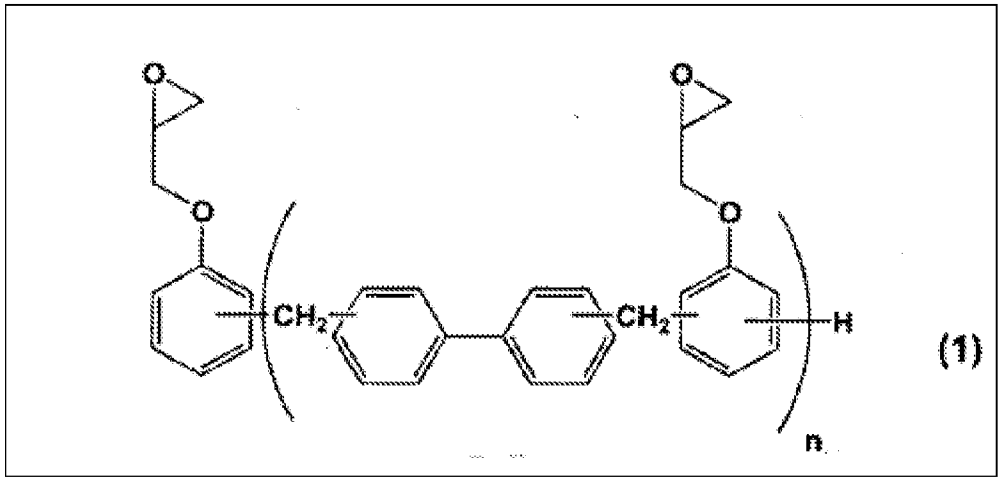
to yield



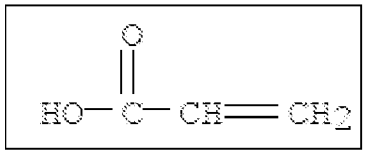
which is reacted with a polybasic acid anhydride to yield



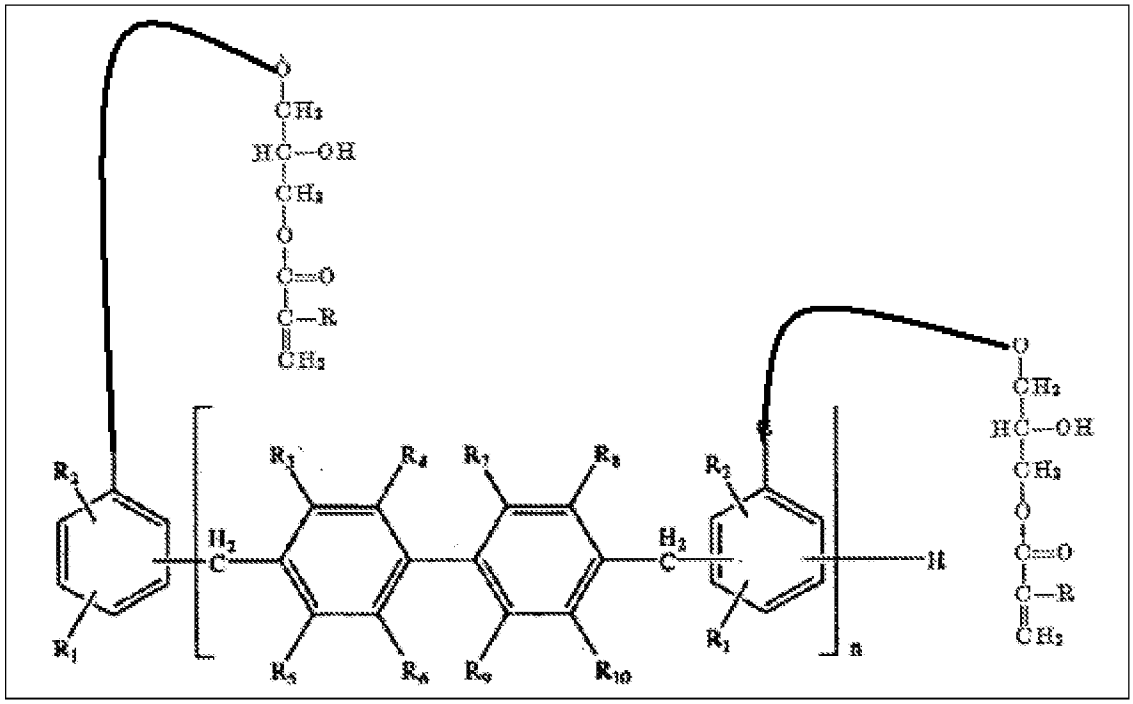
. The method of copending Application No. 11/988,903 is to react the



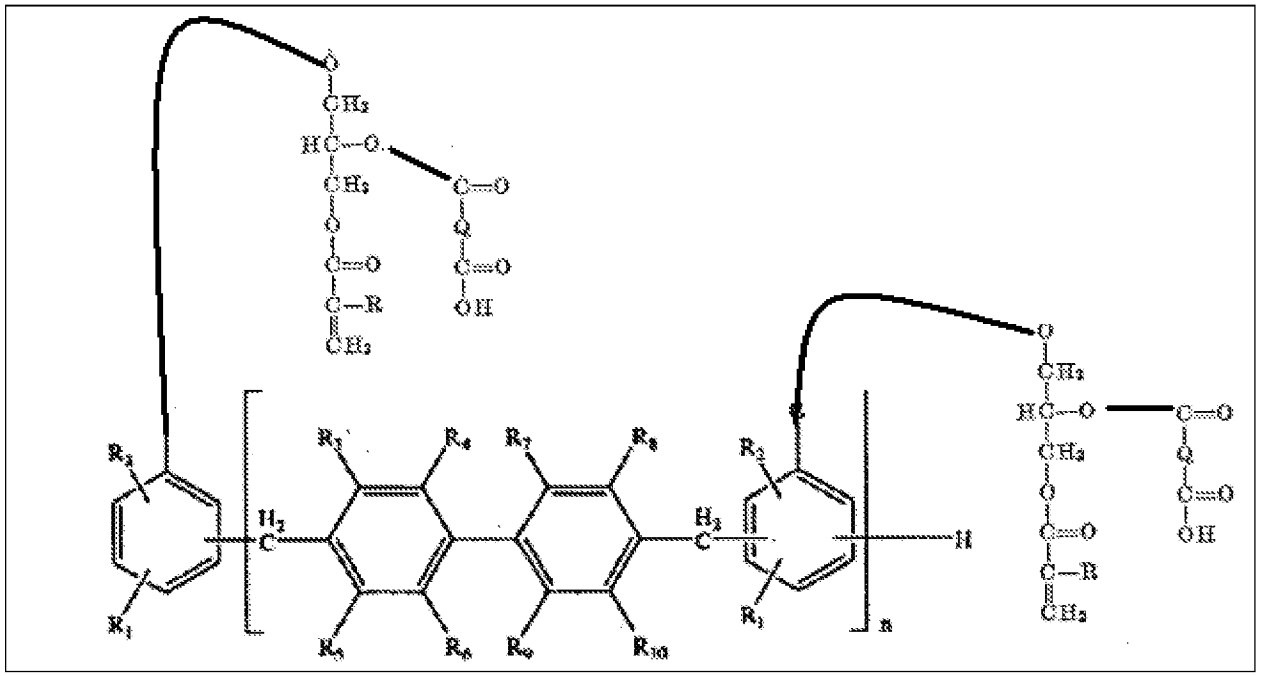
with



generally, to yield



then react with the polybasic anhydride and end up with



which is essentially the same as a species of the instant invention. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based

on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Thus, a species anticipating the genus makes the genus anticipated.

This is a provisional obviousness-type double patenting rejection.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tanaka et al (US 2009/0042126 A2) is cited as the prepublication of copending Application No. 11/988,903. Miyamura et al (US 4,925,773) teaches reacting glycidyl novolak resins with monocarboxylic acids then anhydrides to obtain solder resist inks. Tzou (US 5,858,618) shows the resultant reactions as pointed to by the examiner with epoxy compounds, acidic groups and anhydrides in columns 3-4 for forming solder masks with satisfactory adhesion and developability for electroless gold plating.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H. Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Hamilton/
Primary Examiner, Art Unit 1795

February 22, 2009